



# FLIGHT

*The*  
**AIRCRAFT  
ENGINEER  
&  
AIRSHIPS**



First Aero Weekly in the World  
 Founder and Editor: STANLEY SPOONER

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## Flight

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## DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

June	...	Imperial Air Conference
June 10	...	Race, Lugo-Trieste-Triente-Lugo
July 2	...	Aerial Pageant (Hendon) for R.A.F. Memorial
July 6	...	Entries close for Aerial Derby
July 16	...	Aerial Derby
July 29-31	...	Jacques Schneider Cup, Venice
Aug. 27	...	Entries Close for Coupe Deutsch
Sept. 4-11	...	Brescia Races
Sept. 5	...	Pulitzer Trophy, Detroit, U.S.A.
Sept. 18	...	Gordon Bennett Balloon Race
Sept. 25-	...	
Oct. 2	...	Aero Exhibition, Prague
Oct. 1	...	Coupe Deutsch de la Meurthe
Nov.	...	Paris Aero Salon

## EDITORIAL COMMENT

SOME time ago we recorded the measures which are being taken in France to encourage approved War pilots to maintain their practical association with flying, by means of giving free loan of machines for flights, free fuel and even free insurance of the aviator while in the air. It would appear

that this broad-minded policy is having the effect anticipated by the French authorities, for already considerably over a thousand practice

Encouraging flights have been made at the three aerodromes which have been opened for the purpose at Orly, Angers, and Clermont-Ferrand, although the scheme

has had very little time in which to get going. Centres are still to be opened at Bordeaux and Orleans, and when matters have shaken down to a regular routine there is no doubt the numbers of qualified pilots who will desire to take advantage of the arrangements which are made for their instruction will increase very materially.

Naturally, the object of the French Air Ministry, in giving facilities such as we are discussing, is by no means an unselfish one. It is certainly not altogether bent upon merely giving a few hours' pleasure to pilots with War service and who are still keen on a "joy-flip." Nothing of the kind. France means to be first in the air, both in Peace and in War, and the scheme is designed to create and maintain a powerful flying reserve of pilots which will be available whenever required to expand the *cadres* of the active Air Service. And very effectively the object is being attained, if we are to judge by the results already recorded. In the meantime, we are talking a good deal about the creation of a Territorial Air Force—we prefer the words Reserve A.F.—but are doing nothing practical to enable our War-trained pilots to keep up their efficiency or to train any sort of Reserve at all.

## Airships in Commerce

It is said that when the American Air Service has finally taken over the rigid airship "R. 38," which has been built in this country and is now practically ready to be delivered, the United States authorities intend to use her, in a series of test flights, to

determine the exact place the large airship will take in commercial aviation. A chain of mooring masts is to be erected right across the Continent, from Atlantic to Pacific. When these preparations, together with the necessary ground organisation are completed, the intention is to carry out experimental voyages between the two seaboard. It is said that the American experts are fully convinced of the value of large airships in commerce, granted only that their employment can be placed upon a sound business basis and to discover what that basis is likely to be, actual flying data are to be obtained with the "R. 38"—or the "Z.R. 2" as she is to be known—so that light may be thrown on the problem of designing vessels especially for the carriage of passengers, mails and goods.

This is, of course, the only method by which the necessary data can be obtained, and, as our readers know, we have long urged upon our own authorities that experimental flights, such as the Americans contemplate, ought to be undertaken by the airships, which are more or less being allowed to vegetate in their sheds. From time to time the Government has consented to find the money for flights on these lines, but always at the eleventh hour something has happened to alter the plans. It is, for example, common knowledge that long-distance flights were to have been carried out this Spring with one of the big rigid. England to Egypt and back was to have been one. Now the plans seem to have been rendered down to the establishment of an experimental service between London and Paris—a welcome service it is true, but one which will be as little informative of the real capabilities of the large airship as need be. There is talk in the air just now of an airship service between London and the south of France, England to find the ships and the French Government to erect the necessary mooring masts and afford all the essential facilities. We sincerely hope this report will turn out to be true, since such a service would help to obtain the data required to tell us whether the big rigid is a commercial proposition or not. For our own part, we are very strongly of opinion that it is. We know there is an opposing school of thought, but that makes it all the more necessary that practical tests, on a comparatively large scale, should be undertaken.

**Speeding-up Air Services** In our comments last week on the subject of the Channel services, we spoke of the enormous overhead charges which had to be met, owing in great part to the large staffs which had to be maintained at the air-ports. As we then said, it is essential to bring down these unproductive expenses very materially if air-services are to pay their way. One way to reduce them is by increasing the services. Another is by the provision of improved facilities for handling the traffic, enabling the operating companies to carry on with smaller staffs at the aerodromes. We are glad to note that the last appears to be well recognised, and that, now we really have services in being which look like being permanent institutions, measures are being taken to speed up the work at the terminal aerodromes. At Croydon, for instance, a scheme has been adopted of bulk storage for petrol. There is nothing at all novel in the character of the installation, which is simply the conventional one of underground tanks, from which petrol will be delivered straight into the

tanks of the "air expresses" through flexible hose. The noteworthy point about it is that this method of fuelling will save five-sixths of the time now occupied in filling tanks by hand from two-gallon cans, while it will be a one-man job to lead the hose from tank to aeroplane instead of taking up the time of half-a-dozen who have little to do but make good between jobs. It is more as a sign that aviation is really coming into line with other transport in its methods, and is striving to conduct its business on the most up-to-date and economic lines than as an innovation that we regard this departure. If it were not for this aspect of the matter, the simple fact would have no more interest than the erection of another wayside fuel pump for the use of motorists.

### Berlin to London in a Day

The journey between Berlin and London has been done in a day. Last week an "air taxi" arrived at Croydon carrying a business man who had paid the fairly stiff figure of £150 to be conveyed from one capital to the other during daylight of a single day. The flight was accomplished in two stages. Berlin was left in the morning and the machine flew to Dortmund, where another aeroplane with a Dutch pilot was in waiting to cover the last stage of the voyage and this machine duly arrived at Waddon at 5 p.m.

To those who know, there is nothing at all wonderful in this flight, which is simply remarkable for being the first of the kind undertaken as a matter of business. We have no recollection, though, of the through journey having ever been done in one day for any reason. To the man in the street, however, it must serve as a demonstration of the remarkable way in which aircraft are able to annihilate distance and to circumscribe the world's dimensions more and more every day. On second thoughts, we are not so certain that the man in the street will have gathered anything about what is really a quite remarkable achievement, since we have been able to find no record in the newspapers which runs to more than a comparatively obscure paragraph of eight or nine lines. This is in itself a most eloquent tribute to the immense progress that aviation has made. When we remember that very little more than a decade has passed since, in view of the mere fact that a daring experimenter had actually got off the ground and remained in the air for a few seconds, the newspapers of the world were devoting columns of space to a discussion upon whether it was more than remotely possible to really solve the practical problem of flight, the fact that such a flight as we have recorded can pass almost unnoticed is almost more wonderful than the accomplishment.

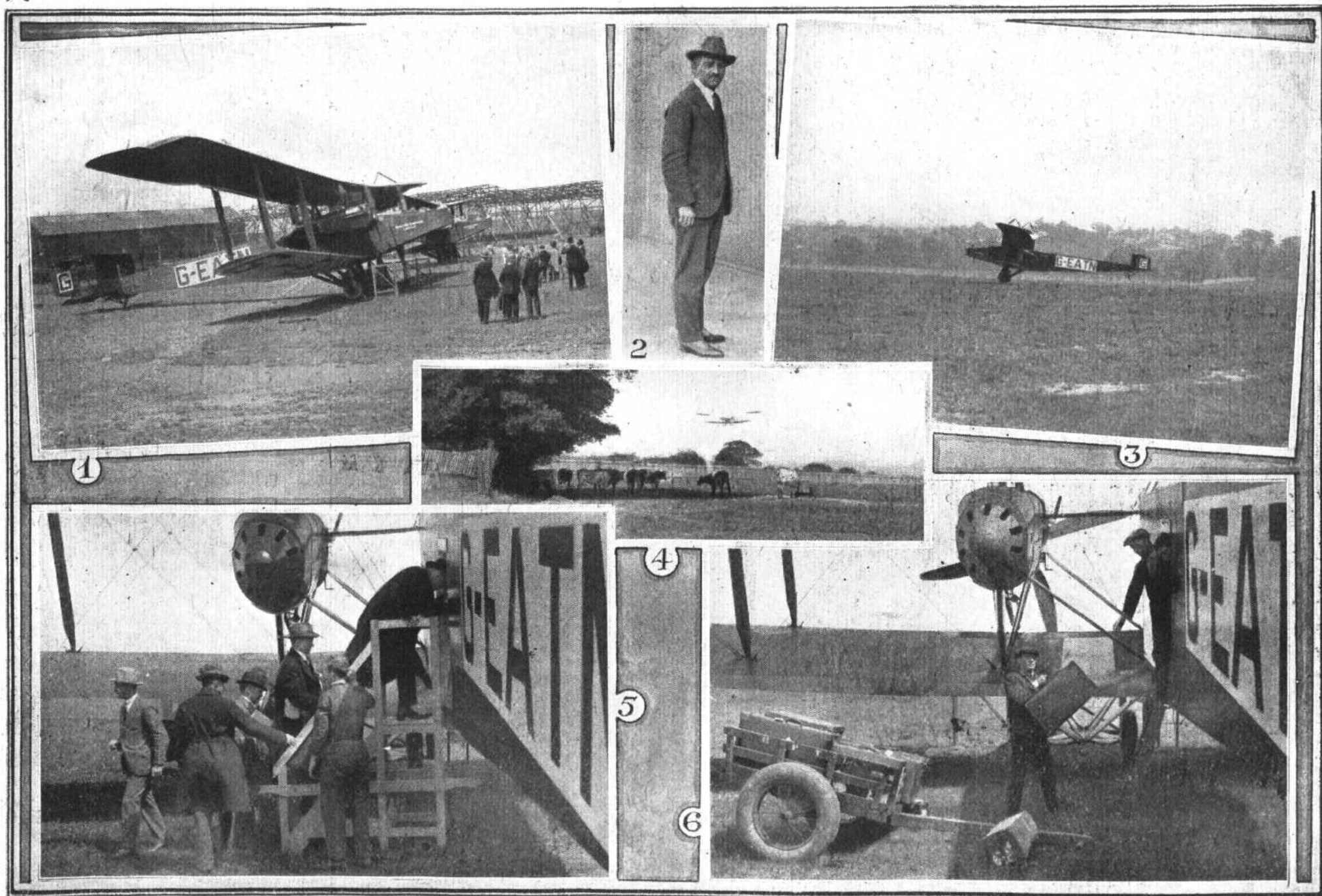
### Extending the French Services

It is doubtful if people in this country realise how rapidly the air services in France are being extended, or how much they have become an established factor in the nation's passenger transport. Hardly any of what may be called the trunk routes is now without its regular air service in being or projected for immediate exploitation. The whole country is rapidly being covered by a network of aerial services almost comparable with the railway map and, what is most important, they appear to be running on a commercial basis. Of course, the Government subsidy is accountable in no small



## The Camera and the 'Plane

MAY 26, 1921



THE HANDLEY PAGE CRICKLEWOOD-PARIS AIR SERVICE: So great is the demand for tickets that not infrequently two machines have to be despatched on the same day. This was the case on Saturday of last week, when two machines left within a few minutes of one another. Our photographs show: (1) The two machines ready; (2) Mr. E. Cogni, general manager of the air service; (3) One of the machines off; (4) The machine leaving the aerodrome; (5) The passengers getting on board; (6) Some of the luggage being taken on board.

**FLIGHT**  
MAY 26, 1921

measure for this rapid extension of French aerial enterprise, inasmuch as it more or less guarantees the industry against actual heavy loss, and the policy of assisting development as the Government is doing appears to be justified up to the hilt.

An example of how far-reaching this development is becoming is to be seen in the long-distance service which is successfully operating between Paris and Casablanca, in Morocco. This is actually in operation on four days of the week, and is now to be increased to a daily service for mails and passengers. It is possible by means of this service to go from London to Casablanca in rather less than two days. The traveller proceeds to Paris by air, but, owing to the present want of night-flying facilities, he travels from the French capital to Toulouse by rail. Leaving Toulouse at 10.30 a.m. next morning, he reaches Alicante the same day, rests there the night, and finishes the journey next morning. The rail and boat journey occupies a full six days, with many changes and delays. In the matter of cost, a ticket from London to Casablanca by airway costs £45 3s. The first-class fare by rail and boat, *via* Paris, Madrid and Gibraltar, and thence by steamer to Casablanca, is a little over £20. At first sight, therefore, air travel does not seem to compare very favourably in the matter of cost, but against this has to be set the fact that there is a saving of four clear days in time. In other words, the journey by air is accomplished three times as quickly at twice the cost of rail and steamer. This is, on a comparative basis, quite good, and we should be prepared to back the opinion that the business man who had to make the journey would consider the great saving in time well worth the extra cost, without taking into consideration the feeding arrangements for the extra days. In other words, it is a fair commercial proposition even at the present fares.

### The Thames as an Air Port

A flight which may well be an outstanding landmark in the history of aviation was made recently, when the Napier Lion-engined Vickers-Viking amphibian machine accomplished the journey from Paris to London in two hours, carrying M. Eynac, French Under-Secretary for Air, and Sir Frederick Sykes, Controller-General of Civil Aviation. There is nothing novel about a flight from Paris to London, but this one stands out as being the fastest ever accomplished actually between the two capitals. Leaving Paris at 10.20 a.m., the machine alighted safely on the Thames above Westminster Bridge at 12.20 p.m. The point is that this flight demonstrates the possibility of doing away with the waste of time entailed by the journey out to Waddon or Cricklewood in the case of departure from London, or to Le Bourget if the traveller is journeying in the reverse direction, which means a clear saving of an hour at least when the trip by motor-car at both ends is taken into account.

What it really means is that by means of an amphibian service between the capitals a businessman can go down to his office in the morning, attend to his correspondence, catch a machine leaving Westminster at 11 o'clock, and be sitting down to lunch in Paris by 1.30. He can get through quite a lot of business in Paris, and actually be back in London before 6 o'clock if he wants. This is bringing the two capitals close together with a vengeance.

How far it will be possible to use the Thames and the Seine as air ports in order to give effect to the full possibilities of such a service as this flight has demonstrated to be possible, we do not know. Considerable interest is being manifested by the Air Ministry. Whether the other authorities concerned are as keen is another matter. However, the demonstration has been given, and the rest lies in the future.

## THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN MAY 13 AND MAY 21, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and No. (in brackets) of Machines Flying
			Mails	Goods				
Croydon-Paris ...	28	105	3	17	25	2 45	Breguet F-CMAM (1h. 36m.)	B. (8), Bt. (1), D.H.18 (2), G. (4), Sp. (4), V. (1).
Paris-Croydon ...	28	100	15	20	21	2 51	Spad F-CMAY (2h. 18m.)	B. (8), D.H.18 (1), G. (4), S. (5), V. (1).
Cricklewood-Paris ...	6	52	4	4	6	3 15	H.P. G-EATK (2h. 50m.)	H.P. (3).
Paris-Cricklewood ...	6	58	—	2	6	3 26	H.P. G-EATK (3h. 15m.)	H.P. (3).
Croydon-Brussels ...	9	11	7	8	8	2 14	D.H.9 O-BELG (2h. 19m.)	D.H.4 (2), D.H.9 (3).
Brussels-Croydon ...	8	10	8	7	7	2 51	D.H.9 O-BIEN (2h. 23m.)	D.H.4 (1), D.H.9 (3).
Croydon-Amsterdam ...	9§	17	8	9	6	4 12	D.H.9 H-NABO (2h. 10m.)	D.H.9 (1), F. (3).
Amsterdam-Croydon ...	9§	12	6	6	7	3 16	Fokker H-NABJ (2h. 45m.)	D.H.9 (1), F. (3).
Totals for week ...	103	365	51	73	86			

\* Not including "private" flights.

† Including certain journeys when stops were made *en route*.

‡ Including certain diverted journeys.

§ One to/from Rotterdam.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.).  
 F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. N. = Nieuport. P. = Potez.  
 Sa. = Salmson. Se. = S.E.5. Sp. = Spad. V. = Vickers Vimy. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Co. des Grandes Expre ses Aériennes; Handley Page Transport, Ltd.; Instone Air Line; Koninklijke Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

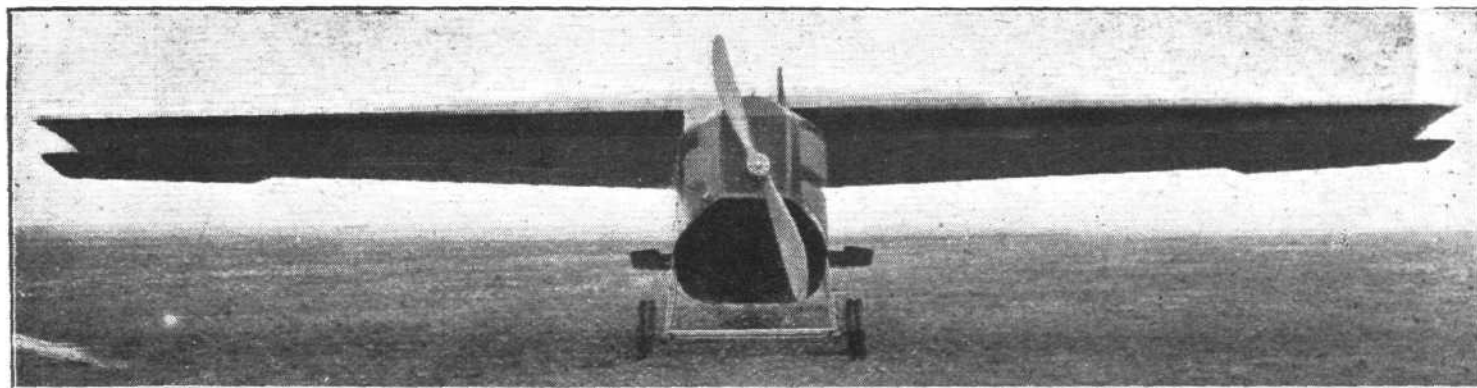


# THE FOKKER F III COMMERCIAL MONOPLANE

230 H.P. Siddeley-"Puma" Engine

At the time, last year, when the first of the Fokker F III machines was flown from Amsterdam to Croydon by Mr. Hinchliffe we published illustrations and a brief description of this machine. Since then considerable modifications have been made, and as these machines are now in regular service on the London-Amsterdam air line operated by the *Koninklijke Luchtvaart Maatschappij*, a description and a few illustrations of the machine may not be without interest. On application to the Fokker works at Amsterdam, the manufacturers have been good enough to supply us with a couple of photographs and general arrangement drawings of the

journey. Yet we understand from the pilots who fly the machines between London and Amsterdam that this is by no means the case, the machine flying comfortably on about three-quarter throttle. The speed is not high, could not be very high for that power loading, but it appears to be high enough. That is the whole point of the controversy between those who maintain that the power loading must be low for the sake of speed and safety, and those who hold that to be a commercial proposition a machine must not be expected to have available close on 100 h.p. for each passenger carried. The reserve power of a machine like the Fokker



THE FOKKER F III : Front view.

machine, as well as data relating to weights, performance, etc. These particulars we have been able to amplify and check by inspection of one of these machines at Croydon, which showed the general arrangement drawings to be somewhat unreliable, referring probably to an earlier model. We have made the necessary alterations, and, as shown in the accompanying scale drawings, the machine is for the first time correctly represented. It would appear that the wings have been made slightly longer, while the *aileron*s are provided with balances, and project beyond the trailing edge of the main planes. Other detail differences were also

appears to be sufficient, and if the speed is also sufficient to allow competition with other means of transit, there would appear to be no reason for increasing the power. Rating the Siddeley-"Puma" at 230 h.p., the power expended is 45 h.p. per passenger carried, or, counting the pilot, 38 h.p. for each occupant. This is getting somewhere down to the figures obtaining in pre-War machines, when it was quite a common thing to carry pilot and passenger on a 50 h.p. Gnome developing somewhere about 45 h.p. But for the startling performances attained during the War we should still think the speeds corresponding to such a power loading reasonable



THE FOKKER F III : Side view.

noted, especially in the arrangement of the louvres and of the exhaust pipe.

Designed for economy, the new Fokker F III is chiefly interesting on account of the fact that with an engine of 230 h.p. only, it carries five passengers in addition to the pilot. Yet from what we have seen of the machine, it appears to get off very well, considering the high power loading, and it certainly seems to have a most extraordinarily good gliding angle, while the landing speed is quite reasonably low. It might be thought that, with such a high power loading, the engine would have to be run all out most of the time during a

for commercial work. In the Fokker the power loading is just under 20 lbs./h.p., and the speed is about 100 m.p.h.

## General Construction

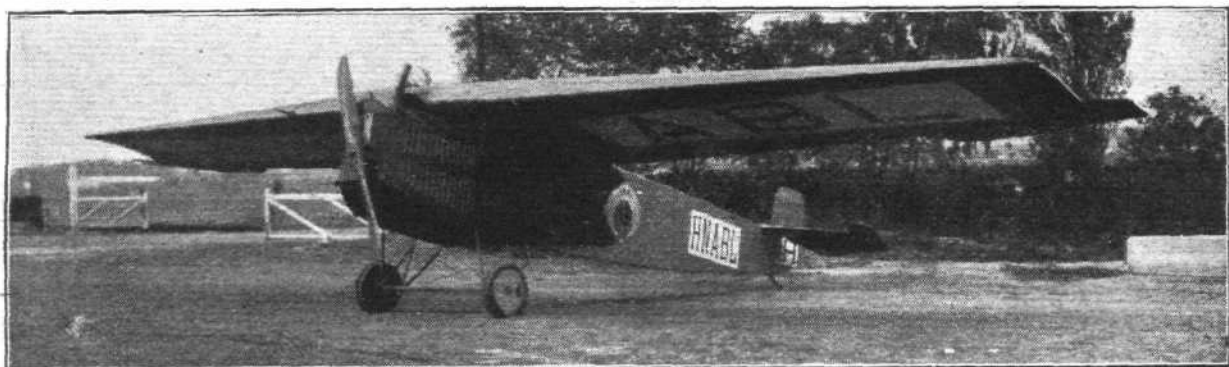
In general construction the new Fokker F III follows closely the lines of the earlier machine. The rectangular section *fuselage* is built entirely of steel tube, the struts being welded to the tubular *longerons*. In this respect the F III is similar to the War-time German Fokkers. The bracing is by piano wire, and the well-known Fokker feature of simply looping the wire over the tubular quadrants in the corners

between struts and *longerons* is also found in the F III. Although this appears to duplicate the bracing wire, it does not do so in reality, as in the case of the wire breaking it will slip over the quadrants and be of no use as a stressed member. The chief advantage would appear to be that instead of the usual single wire and wire strainer, which requires four loops to be made and four ferrules slipped over, and four ends of wire bent over the ferrules, with this arrangement there are only two loops to be made. Certainly it should not be regarded as duplicate wiring. Again, the welded joints for struts and stressed wire attachments are not to be recommended on theoretical grounds. So long as each joint is a perfect specimen of the welder's art, it may be satisfactory, but there is always the difficulty of detecting the imperfect weld, and thus one is very much in the hands of the

tips, as one has become accustomed to expect in a machine whose designer has learned his trade in the German school. The *ailerons* are fabric covered, but the fabric has been painted to imitate the three-ply covering of the wing, and it is not until one happens to stand directly under an *aileron*, and sees the light shining through it, that one realises that the covering is different from that of the wing.

#### The Cabin

From the point of view of the prospective passenger, the most interesting feature of the Fokker is the cabin. This is roomy and most comfortable. Seating accommodation is provided for five passengers, three of whom sit in a sort of sofa running across the cabin. Arm-rests divide this sofa into three separate seats, and the springing is such that, even



THE FOKKER F III : Three-quarter front view.

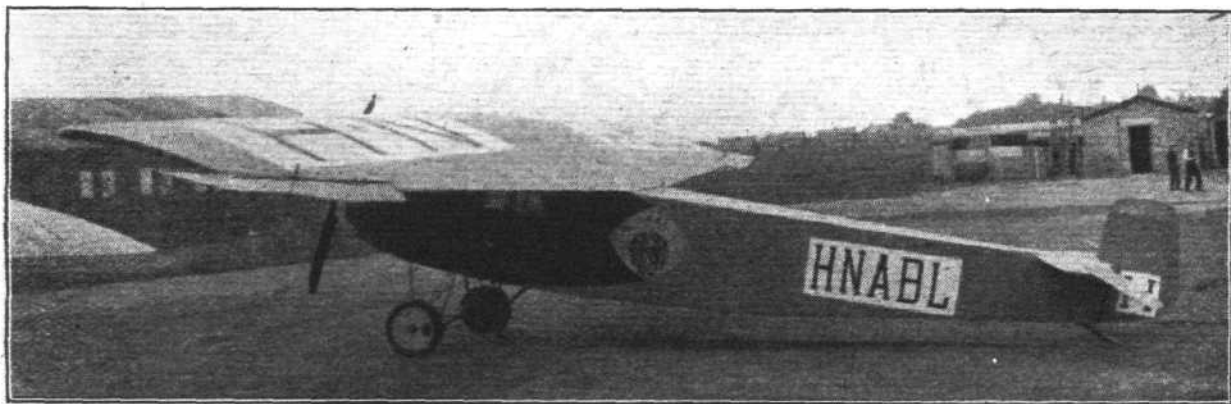
welders. We do not know that in practice this form of construction has been found to give any trouble, but the possibility of defect is there.

#### The Monoplane Wing

From certain points of view one of the most interesting features of the Fokker F III is the wing construction. As will be seen from the illustrations, the wing is of very deep section, tapering both in thickness and chord from the root to the tips. It is of the cantilever type of wing, without any external bracing, which gives the machine a very clean appearance. The two main spars are box spars, with top and bottom flanges of spruce and sides of three-ply wood. The ribs are of three-ply, with spruce flanges. In order to render the wing more resistant to changing weather conditions,

in a very bumpy landing, the passengers would feel little or no shock. The remaining two seats are in the form of comfortable arm-chairs, anchored to the floor of the cabin by short cables, which allow of moving the seats about to a certain extent while still ensuring that they are not capable of being upset. Behind the sofa is a narrow space running across the cabin, forming a compartment for light luggage. In a small cupboard in the aft wall are kept, we notice, first-aid outfits for cases of emergency. Owing to the absence of any wing below the roof of the cabin, the view obtained is extraordinarily good in a horizontal and oblique direction, and in this respect the underslung cabin would be difficult to improve upon.

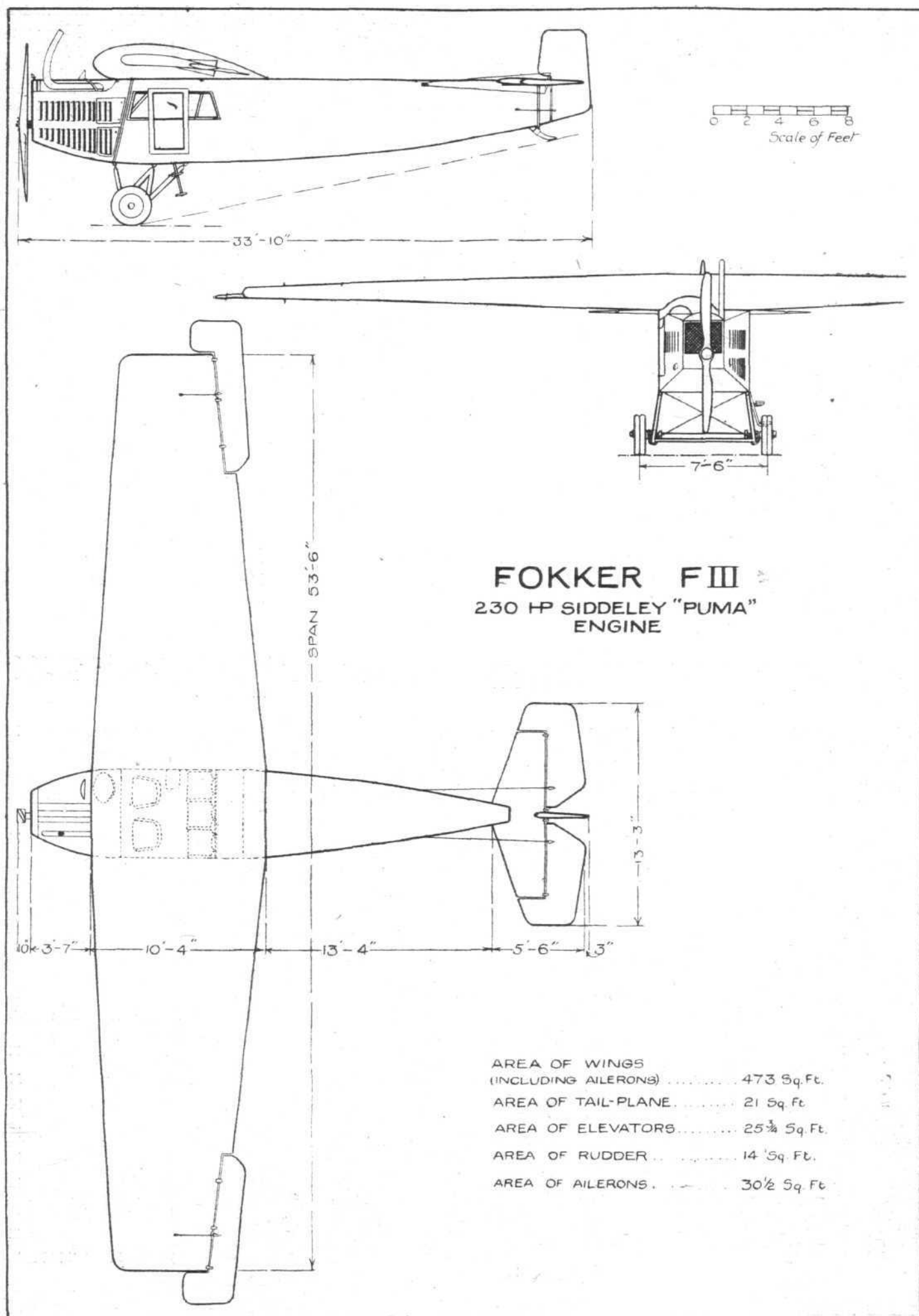
As regards the question of emergency exits, we feel that we are entitled to offer a certain amount of criticism. Should



THE FOKKER F III : Three-quarter rear view.

and also to assist in strengthening it against torsional stresses, the usual fabric covering has been replaced by three-ply wood. It is claimed that the result is a wing which has no tendency to warp or get out of truth, and that therefore no adjustment is necessary, nor, for that matter, is it possible once the wing is finished. The centre portion of the wing is of uniform chord, for a distance equal to the width of the fuselage, and at the ends of this parallel portion are the four large bolts by means of which the wing is secured to the top of the body. Thus, by undoing four bolts the wing can be lifted off. The remainder of the wing tapers both in chord and thickness. The *ailerons* are of the balanced type, and appear to be very small in proportion to the size of the wing. Yet we are told by pilots who have flown the machine that the *ailerons* are quite effective, probably by reason of the tapering wing. There is a slight wash-out to the *aileron*

the machine alight on the sea, it seems probable that she would keep afloat for some time owing to the buoyancy of the deep three-ply covered wing, but she would probably at once submerge until the whole of the fuselage was under water. In that case it would be a matter of some difficulty, not to say impossible, for the passengers to get out through the windows. The roof of the cabin is covered by an aluminium plate, and above that again is the very substantial centre portion of the wing, inside which is housed the petrol tank. Thus escape through the roof would be impossible. It appears to us that a much more satisfactory arrangement would be to divide the petrol tank into two, placing one on each side in the wing just clear of the body. A trap-door in the centre section would then afford ready means of exit in cases of emergency, and this arrangement would not interfere to any great extent with the simplicity of the petrol

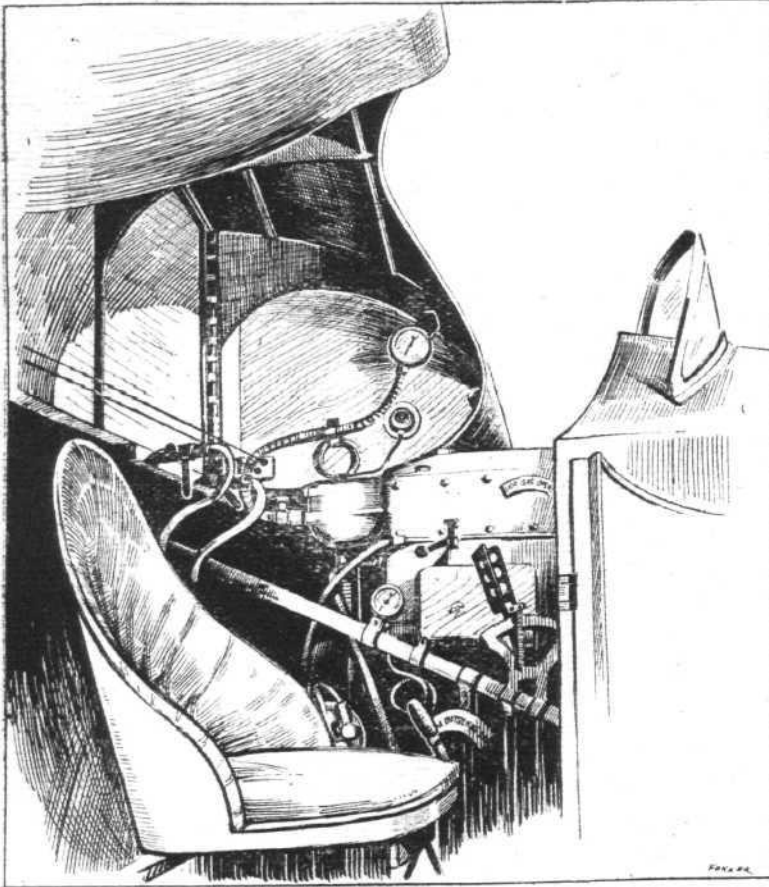


THE FOKKER F III: Plan, front and side elevations, to scale.

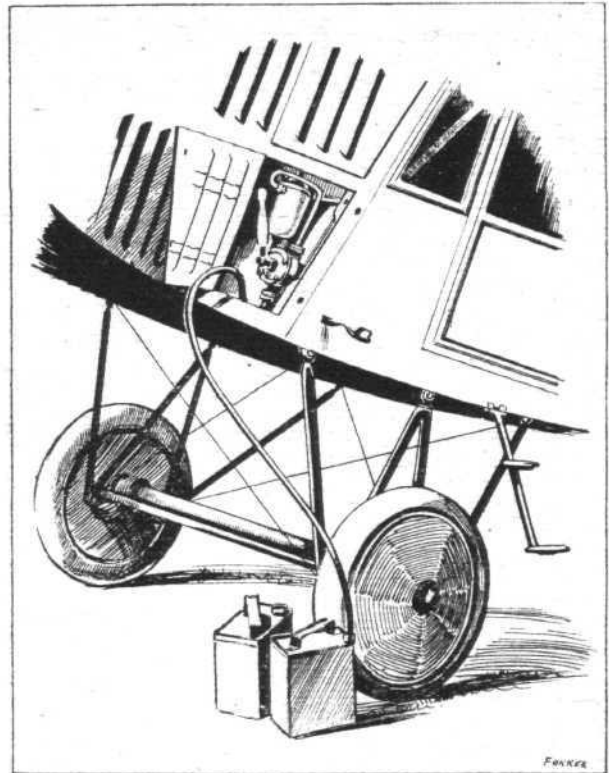


system, which could still be by gravity from the two main tanks. The alteration suggested would, we think, render the Fokker F III one of the safest and most comfortable machines in existence. We would point out that we are not

slightly more room for the pilot, the engine is mounted a little to port of the centre line of the machine. On the star-board side of the engine is the pilot's seat, level approximately with the end of the engine. As there is no partition the pilot can see his engine constantly during flight, and the engine controls are of the simplest possible and very short. The throttle, ignition, and radiator shutter levers



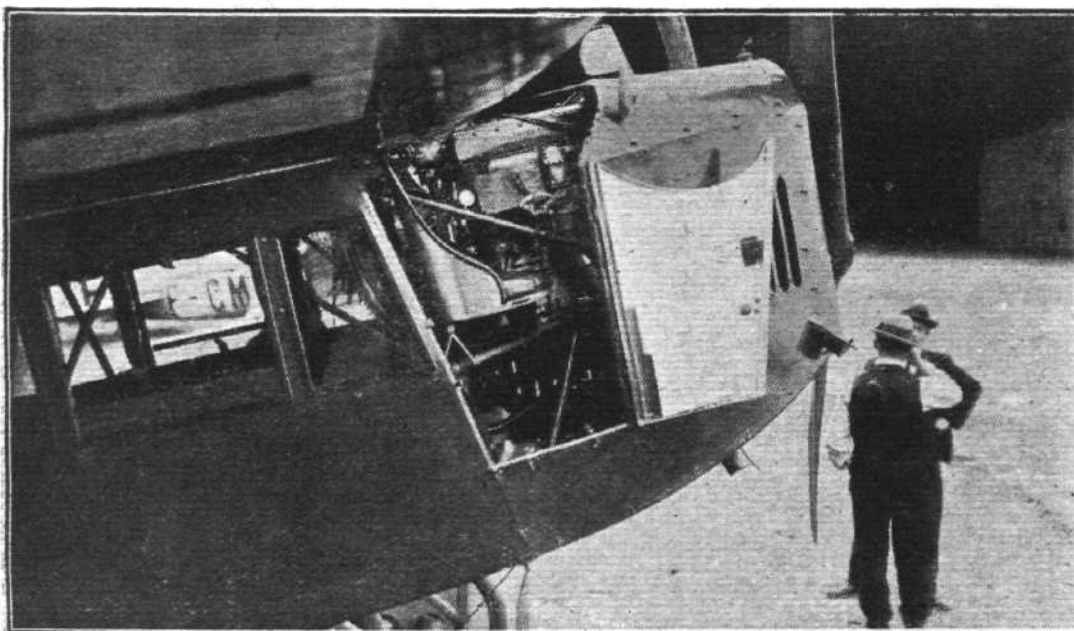
**THE FOKKER F III:** Sketch showing pilot's seat and engine controls, etc. Note instruments on nose rib and front spar.



**THE FOKKER F III:** The petrol pump, by means of which the tank is easily filled by one man in a few minutes.

offering this criticism in any carping spirit, but are merely prompted by a desire to see every machine used for passenger work made as safe as it is humanly possible to do, and to prevent as far as possible any chance of an accident which would do harm to the cause of aviation.

are mounted on the engine itself and within easy reach, as will be seen from the accompanying sketch. The petrol feed is by gravity from the main tank, which is mounted inside the centre section of the wing. A petrol gauge is placed on the left, running down the front face of the front spar.



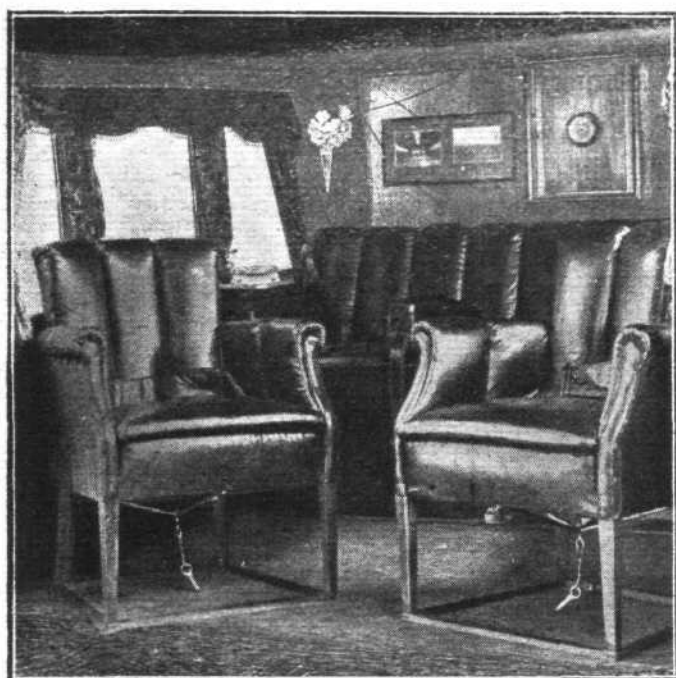
The Fokker F III:  
 View showing  
 pilot's cockpit  
 next to the engine,

#### The Engine Installation

One of the unusual features of the Fokker F III is the installation of the engine, or rather of the pilot in the engine-room. The engine, a 230 h.p. Siddeley-"Puma," is mounted on a framework of steel tubes, much after the fashion of the German Fokkers of the D.VII type. In order to leave

In order to provide room for the pilot's head, a portion of the leading edge of the wing has been scooped out, and inside this are mounted the various instruments. Although possessing many obvious advantages, this arrangement is so unusual as to feel rather strange to the pilot at first. We are told, however, that he soon becomes accustomed to it,





**THE CABIN OF THE FOKKER F III:** Well upholstered armchairs and ample leg-room make this cabin extremely comfortable, and, owing to the high position of the monoplane wing, the view obtained through the windows is absolutely unobstructed.

and then generally likes it. To us personally it appears that the view forward and slightly to port is very poor, and another thing which we did not particularly like is that the pilot, seated as he is with his head inside the scooped-out portion of the wing, cannot see his wing tips. How he tells whether or not his machine is on a level laterally we do not know, but it would probably be a simple matter to fit, over the top of the radiator for instance, a cross-wire arrange-

ment by which the lateral inclination of the machine could be judged.

From the point of view of accessibility the engine installation is excellent, all parts of the engine being easy to get at and the engine housing very roomy. The manner of filling the petrol tank is ingenious, and is illustrated in one of our sketches. Mounted near the port side of the engine housing is a pump of the type which one associates with yachts, etc., but which is not frequently found on aircraft. From this pump a length of rubber tubing, normally coiled up inside the engine housing, can be taken outside the machine and its free end inserted in a petrol tin. A few strokes of the pump soon transfers the petrol to the tank, when the next tin is emptied, and so on. The whole operation of filling up the tank can be accomplished by one man in a few minutes, and there is no slopping over and spilling the petrol all over the machine.

#### The Undercarriage

As the undercarriage is similar to that of the earlier model, there is no need to go into great detail here. It consists of two frames of W formation, which, owing to the considerable width of the body, do not rake outward to anything but the smallest extent. Double wheels are fitted, and the springing is by rubber cords.

#### Brief Specification

Following is a brief specification of the Fokker F III:—

Engine .. ..	230 h.p. Siddeley-“Puma.”
Tank capacity (petrol) ..	78 gals.
Tank capacity (oil) ..	7 gals.
Accommodation ..	Pilot and five passengers.
Length o.a. ..	33 ft. 10 ins.
Span .. ..	53 ft. 6 ins.
Height .. ..	10 ft. 6 ins.
Height of cabin ..	4 ft. 8 ins.
Wing area ..	473 sq. ft. (including ailerons).
Weight empty ..	2,815 lbs.
Useful load ..	1,705 lbs.
Weight fully loaded ..	4,520 lbs.
Weight per sq. ft. ..	10 lbs.
Weight per h.p. ..	19.65 lbs.
Maximum speed ..	105 m.p.h. (approx.).
Cruising speed ..	90 m.p.h. (approx.).

## THE OLYMPIA TOURNAMENT

IN spite of the coal trouble and the consequent disorganisation of all forms of travel, the Service authorities must be overjoyed that they were not deterred by this great handicap from carrying through the arrangements for the Tournament at Olympia this year. It must have been a big anxiety as to the result, but the huge daily attendances since the opening on Thursday of last week have more than justified the decision to “carry on” as usual. As to the show itself, nothing finer has ever been staged. It is all so utterly practical yet thrillingly interesting and attractive. As each item on the programme—and this is varied from day to day—follows on, the wonder is that such a series of features can be sustained. In short, the whole thing is alive, whether it be naval, military or R.A.F. units which hold the arena. There is never a moment of waiting between the items. Each display is on the move into the centre hall, almost before the “tail” of the last performers has vanished behind the great exit gates.

At the first performance the opening item fell to a display of drill and the handling of arms by boys from the School of Technical Training, R.A.F., Cranwell. It would not be possible to obtain any more convincing evidence of the splendid effect of this R.A.F. centre of training upon the youth of today than the display given by these future “possibles” in the realm of the air. We do not remember having seen any regular troops who carried through their drill and manoeuvring with more faultless precision than this group of boys. And the “house” signified their approval in no uncertain terms. At other performances units of the R.A.F. have participated, and on Friday 210 Squadron sportingly won their heat in the tug-of-war against a naval team—a

team who from mere appearance suggested a “walk-over” against the rather slim Air Force men, although it must be confessed the same result on other days was not quite so happy for Cranwell representatives. In the Service fencing bouts on Monday morning last the R.A.F. results were: Flight-Lieut. F. C. Sherriff, M.C., R.A.F., 1; Sqdn.-Ldr. E. G. H. Clarke, M.C., R.A.F., and East Surrey Regt., 2; Sqdn.-Ldr. Rev. J. R. Walkey, R.A.F., 3. Flight-Lieut. Sherriff did not have an easy win, which depended finally on the result of his bout with Sqdn.-Ldr. Clarke.

Of other Service attractions it is difficult to select any particular item, all are so attention-compelling, whether it be the Inter-Port Field Gun display, the Life Guards' Musical Ride, the musical drill of the Royal Horse Artillery, displays by Royal Engineers, R.A.S.C., or bayonet, sword and quarter-staff of the Army Physical Training Staff, and a host of other perfectly arranged “turns.” One and all for the moment commands one's admiration. Then, in addition to all, comes the finale and grand pageant, “Neptune's Soldiers,” producing a history of British soldiers who have fought at sea—the Marines. This is really great, and moreover has such touches of humour in it that it amuses whilst it suggests, as a whole, serious thought and thanks to those who during the past centuries have so worthily helped to uphold the honour and prestige of the great British Empire. In fact, those who fail to take their fill of the good things provided at Olympia daily until June 4 next will presently regret they are not able to speak of the show of the year, not forgetting the military bands, whose strains are a running accompaniment throughout the programme.

#### Short Service Commissions in the Royal Air Force

THE Air Ministry announces that the next course for Officers granted short service commissions in the Royal Air Force by direct entry from civil life will commence on July 1, 1921. The Selection Committee will sit at the Air Ministry on June 1, 2 and 3, to interview candidates.

#### The Vickers-Built Blimp for Japan

LAST week the airship recently completed for Japan by Messrs. Vickers, Ltd., was deflated and packed up for shipment to Japan, where she will be re-assembled for sea-scouting. The successful trial flight of this airship was reported in *FLIGHT* recently.

# CROYDON TERMINAL AERODROME

Monday Evening, May 23

THE air-station—our “Charing Cross of flying”—is rapidly becoming one of London's wonder-spots. Aeroplanes of many types and nationalities pass in and out daily. There is now even to be an airship, moored out at its mast, as a permanent institution. With the advent of Handley Page Transport, whose first machine is expected on Wednesday, we shall have at Croydon, an airship, twin-engined aeroplanes, single-engined 8-seaters, monoplanes, and “amphibian,” and so on, down to the humble “Avros” used by the joy-ride firms.

There are several constructional improvements being carried out on the 'drome. Roads are being widened. The tarmac, where the cars for passengers are parked, is to be extended. An enclosure to contain the notice-boards is also being built. At present weather reports are exhibited on the prohibited side of the Customs' barrier, and are not available for the general public. The new enclosure will, however, put these at the disposal of everyone. The enclosure will, in addition, contain the boards notifying the progress of machines in and out of the air-port.

The concrete base for the airship mast is already in position. Pipe-lines are being run out rapidly to the mast from the shed. I understand that the mast is to be ready for use by June 10, which will mean some hustle. The airship “R. 33” is to make her home at Croydon, and is to be used for the training of airship crews.

The two public enclosures are now thrown into one, which is a great improvement. Work on the new stores and offices for Handley Page Transport is proceeding apace. Several lorry-loads of spares and stores have already arrived from Cricklewood, and everything should be ready for the first machine on Wednesday.

The fourth D.H. 18 was tested at Stag Lane on Friday, and on Saturday, Mr. Barnard hired one of the Surrey Flying Service “Avros” and was flown over to Stag Lane by Capt. Muir to collect the “18,” flying it back that evening to Croydon. Several detailed modifications have been embodied in this machine, which has the registration number G-EAWO. The emergency exits in the roof of the cabin have been improved, and attention is drawn to these by notices. Small luggage racks have been fitted, and a speaking-tube from the cabin to the pilot's cockpit is installed for use in emergency. Small boxes, with removable tin linings, are provided at the side of each seat for holding paper bags after they have been used by passengers afflicted with air-sickness.

The Instone Air Line have been approached as to the possibility of carrying a racehorse in the Vickers “Vimy.” But the owner of the horse had not thought, evidently, of what would happen if the animal took fright while in the air and indulged in an orgy of kicking. Also the small size of the cabin-door would have necessitated the horse being introduced into the machine by instalments.

On Saturday evening the B.A.T., piloted by Mr. Powell, made a special journey to Paris with a surgeon who had been called urgently to perform an operation. Leaving Croydon

at 6.20 p.m., he arrived at the bedside of his patient in about three hours.

The K.L.M. have bought the last two D.H. 9's from Aircraft Transport and Travel, and mechanics are overhauling these machines ready for service. One of the Fokker monoplanes is now fitted with a map of the London-Amsterdam route, and an indicator, worked from the pilot's seat, tells passengers just what portion of the “airway” they are flying over.

Capt. Leverton tells me that he is now getting full loads for his machines, and is even having to refuse both parcels and passengers at times. The load from Amsterdam, however, still remains rather small, consisting almost entirely of consignments of milk, boxes of cut flowers, and an occasional parcel of gut for tennis rackets. There are few passengers.

The Messageries Aériennes, and the Grands Express, are having a great deal of trouble with their engines. Several of the former company's 'planes have been strewn about the country-side during the week. A Goliath arrived the other day with one valve—to use Mr. Boudier's own words—“entirely vanish.” The pilot had been under the impression that the uneven running had been due to two plugs “missing.” Engine trouble seems to come to all firms in turn. At one period of their existence Aircraft Transport & Travel had their service seriously disorganised from this cause.

For some reason joy-riding has been very quiet over the week-end. In spite of the fine weather, only three passengers ventured into the air on Saturday. On Sunday, however, business was rather brighter.

Capt. Muir tells me he is to take cinematograph pictures from the air of Derby day scenes of the crowds and traffic on the roads before and after the race.

The “amphibian” is at Biggin Hill being fitted with wireless.—Edible frogs, neatly skewered, come over two or three times a week from Paris by air.—There is talk of a wonderful new torpedo-plane, excelling in its performance anything yet achieved.—It is rumoured that of the first two 1,000 h.p. Napier “Cubs,” now ready for service, one is to go to Farnborough to be fitted in a very secret and remarkable machine.—Mr. C. C. Walker, Capt. De. Haviland's “right-hand man,” flew over from Stag Lane the other morning on a D.H. 9 to watch the departure of the outgoing traffic.—For the first time since commercial flying began a business man, flying from Berlin on Friday, and halting once at Dortmund, came through to London in about eight hours, his “air taxi” fare being £150.—Pilots who are homeward bound, and who have a kindly thought for those on the aerodrome, are now bringing with them such luxuries as Paris strawberries and Amsterdam cream.—A D.H. 4, bound for Brussels, went off the other morning with a spare rudder fastened along the top of the fuselage.—The employés of the Instone Air Line have been supplied with house badges to wear in the lapels of their coats.—Comdr. Deakon, one of the C.A.T. Officers at Lympe, visited Croydon on Friday, and told us that a waiting-room for passengers is being prepared at Lympe.

## R.A.F. MEMORIAL FUND

THE meeting of the Executive Committee of the above Fund was held at the offices, No. 7, Iddesleigh House, Caxton Street, on the 12th inst., Air Vice-Marshal Sir John Salmond in the Chair. Members of the Committee present were: Lady Leighton, Dame Helen Gwynne-Vaughan, Mrs. Barrington-Kennett, Sir Charles McLeod, Sir Sefton Brancker, Air Vice-Marshal A. V. Vyvyan, H. E. Perrin, Esq., and W. S. Field, Esq. A list of grants made since the same date, which amounted to £228 14s. 2d., was approved.

Sir John Salmond, Chairman of the Vanbrugh Castle sub-committee, reported that the scheme was progressing satisfactorily. The play-room for the children had been furnished as a gift to the Fund by Messrs. Heals, and he hoped shortly to be in a position to report that some of the dormitories had been equally generously furnished by other firms.

The second list of subscriptions and donations to the Fund received between the dates July 21, 1920, and March 31, 1921, have recently been published in *The Times*, *Daily Telegraph*, the *Aeroplane* and *FLIGHT*.

The distribution of the First Annual Report has been practically completed, but should any reader of this Journal have been accidentally omitted, or would like a copy, the Secretary would be most happy to supply the same on application to the office above named.

A letter was read from the Hon. Mrs. J. E. B. Seely, tendering her resignation of membership of the Executive Committee, owing to her frequent absence from London, and her inability to give sufficient time to her duties on the Committee. The resignation was accepted by the Committee with the very greatest reluctance, and a letter to that effect was sent to Mrs. Seely.

tions of tender can be seen at the “Comandancia de Ingenieros, Calle de Serano, 49, 1st floor, Madrid.” United Kingdom firms interested in contracts in Spain who are unrepresented in that country should apply to the Department of Overseas Trade, 35, Old Queen Street, Westminster, S.W. 1, for assistance in appointing a representative.

### Spain Invites Tenders

ACCORDING to the *Gaceta de Madrid* of May 12, tenders are invited up to June 4 next for the construction of a balloon shed and workshop, for the “Parque Aerostático de Guadalajara.” The maximum quotation admissible is 191,250 pesetas. A deposit is required of 9,562.50 pesetas. The condi-

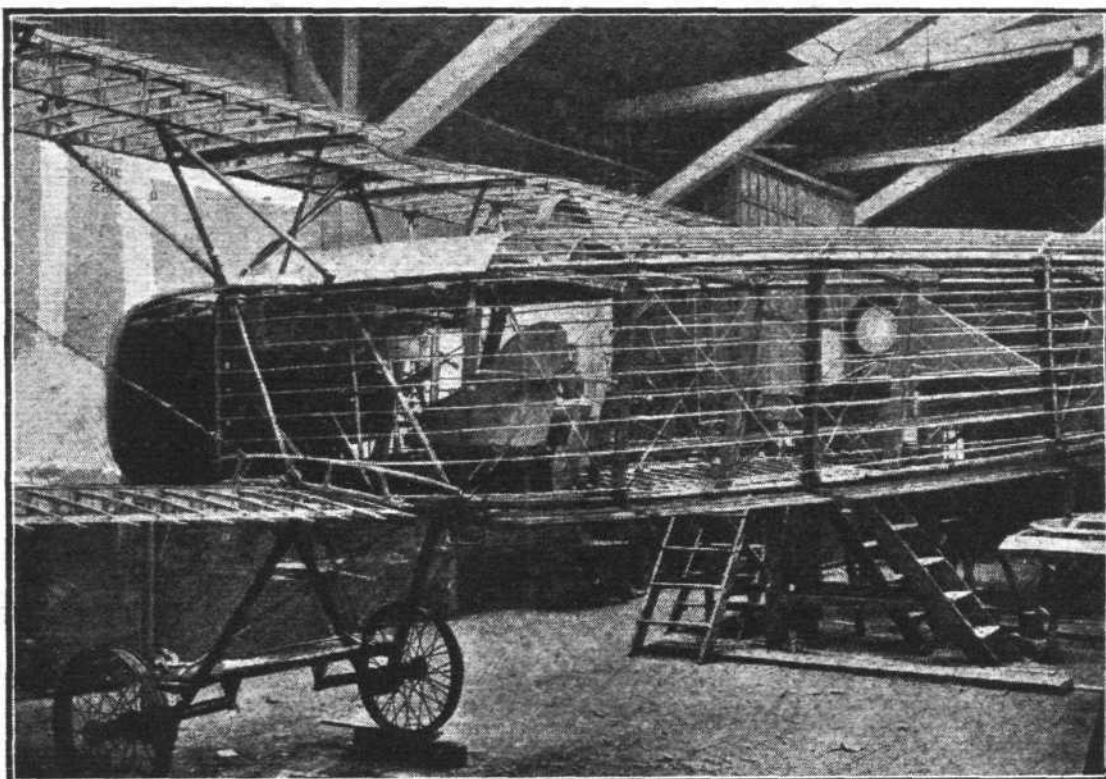


## THE "AE-2.01" CHASER BIPLANE

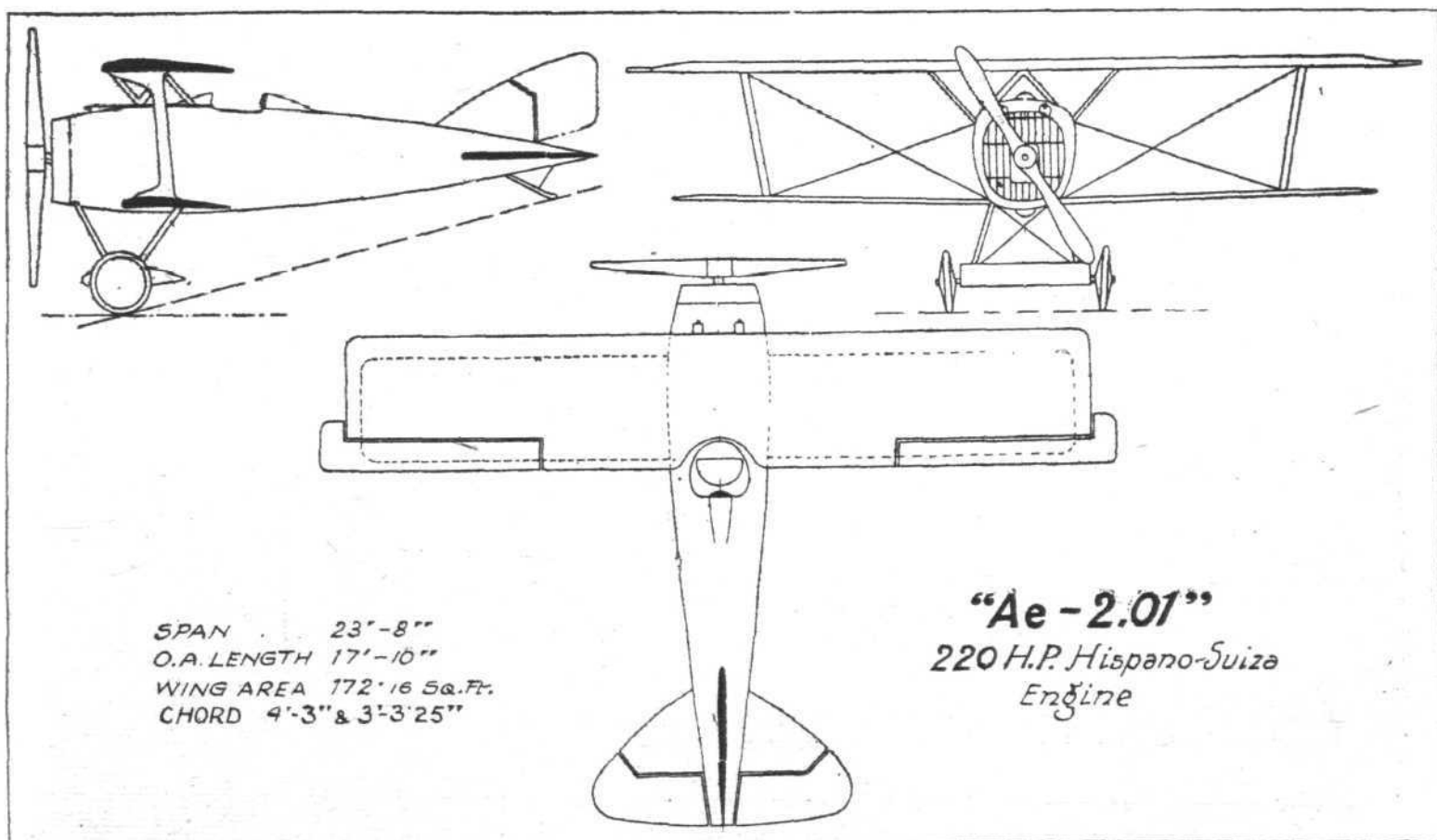
IN a recent issue of *FLIGHT* we gave some particulars of an original monoplane designed and built in Czecho-Slovakia, and we now give our readers a brief description of another interesting machine, hailing from this same country. The machine in question is a single-seater chaser biplane embodying several original features, constructed by the "Aéro" Aviation Works of Bubenec, near Prague, from the designs of MM. Husnik and Vlasak. The designers of the "Ae-2.01"—as it is named—have endeavoured, as far as possible, to

reduce head resistance to a minimum, and how much they have succeeded, as far as outward appearances go, is apparent from the accompanying illustrations—the general lines being exceptionally clean and neat.

The main planes do not call for any special attention, being constructed in the orthodox manner with two main box spars, and built-up ribs. The top plane is "straight" and in one piece, being supported above the fuselage by two sets of N struts sloping outward and an inverted V cabane, the



THE "AE-2.01" CHASER BIPLANE: View of the uncovered fuselage, showing steel-tube construction.



THE "AE-2.01" CHASER BIPLANE: General arrangement drawings.

latter running to the centre of the rear spar. Balanced *ailerons* of narrow chord are fitted to the top plane only, and these are mounted on steel tubes which extend within the plane to a point above the *fuselage* where they are connected to the control by means of crank arms and rods. They are thus positively operated.

The lower plane, which has a smaller span and chord (22 ft. 6 ins. and 3 ft. 3½ ins. respectively), is in two sections, attached to small wing roots "growing" out of the *fuselage*. Top and bottom planes are separated by one interplane strut each side. These struts are of  $\Gamma$  form, built-up of steel tube with streamline fairing, the extremities connecting front and rear spars of each respective plane. The main vertical member of the strut is located at the rear spars, and wing stresses forward of this are transmitted through the "flanges" or horizontal members of the strut. The external bracing is of the single truss type, the cables being in duplicate; there are no incidence cables. The landing cables—which have a rather flat angle—run from the lower rear spar at the junction of the interplane strut to the top *longeron* of the *fuselage* at a point where the front member of the N strut is attached; the lift cables run from the rear spar attachment (lower plane) to the top rear spar at the junction of the interplane strut. We are not favourably impressed with this arrangement of bracing, especially when considering the stresses at big angles.

A lifting cantilever stabilising tail plane is fitted, and the elevators are divided and balanced. A triangular vertical fin is mounted above the *fuselage*, and to it is hinged the balanced rudder.

In the original design the *fuselage* was to be constructed, for the greater part, of duralumin, but in the present model welded steel tube work has been employed instead. In subsequent machines, however, the former metal is to be used. The *fuselage* is of clean streamline form, almost rectangular in cross-section, the sides, top and bottom being slightly curved. It is built up of four main tubular *longerons*, in eight bays, and numerous longitudinal stringers. The whole framework is wire braced. The engine, a 220 h.p. Hispano-Suiza, is totally enclosed within the nose of the *fuselage*, right in front of which is a large radiator with adjustable shutters.

Perhaps the most novel feature of this machine is the landing chassis. This consists of two V's connected near the extremities by a rigid axle or tie-rod. Hinged to two brackets

on the underside of the latter, near the ends, are short stub-axles extending outward through the bottom of the V-struts and each carrying a wheel. These stub-axles are secured to the V-struts by rubber cord. Mounted on the rigid axle is an auxiliary petrol tank having a thick plane-section. By means of a quick-release device the pilot can, if desired, "drop" this petrol tank.

Two machine-guns are carried within the forward position



The "Ae-2.01" Chaser Biplane: Three-quarter front view.

of the *fuselage*, the muzzles projecting just above the radiator, one on each side. The control is of the single-stick and rudder-bar type.

The principal characteristics of the "Ae-2.01" are as under:—

Span .. .. .	23 ft. 8 ins.
Chord, top .. .. .	4 ft. 3 ins.
„ bottom .. .. .	3 ft. 3½ ins.
Overall length .. .. .	17 ft. 10 ins.
„ height .. .. .	8 ft.
Area of main planes .. .. .	172.16 sq. ft.
Weight, empty .. .. .	1199.5 lbs.
„ full load .. .. .	1909.5 lbs.
„ /sq. ft. .. .. .	11.1 lbs.
„ /h.p. .. .. .	8.7 lbs.
Maximum speed .. .. .	130 m.p.h.

## ROYAL AERONAUTICAL SOCIETY NOTICES



**Pilcher Memorial Prize for Students.**—The Council is glad to be able to announce, through the kindness of a gentleman who desires for the moment to remain anonymous, the offer of an annual prize to the value of £5 for the best paper prepared by a Student Member of the Society initiating discussion at a Students' Meeting during each year. This prize will be known as the "Pilcher Memorial Prize for Students," in memory of the late Percy S. Pilcher, who was a member of the Society for many years, and whose gliding experiments did so much to develop the science of aeronautics, and are recorded in Volume 5 of the "Aeronautical-Classics." The details of the arrangements for holding special meetings for students are under consideration.

**Safety and Economy Committee.**—The Safety and Economy Committee held its last meeting on Friday, May 6, when their report was finally approved. It is now in the printer's hands, and will shortly be issued as a pamphlet, price 1s. 6d. a copy.

**Election of Members.**—The following members were elected in the various grades as shown at a Council Meeting held on May 17:—*Fellows*—Comdr. F. L. M. Boothby, R.N., Capt. S. W. Hiscocks, J. L. Pritchard, Col. E. W. Stedman, A.M.Inst.C.E., A. J. Rowledge, M.I.Ant.E., A.M.I.Mech.E. *Foreign Member*—Maj. H. R. Coningsby, K. Hashimoto. *Associate Member*—F. H. Bullock. *Students*—F. G. Ping, G. W. Worsley.

W. LOCKWOOD MARSH,

Secretary

## PERSONALS

### Married

Flight Lieut. G. W. BILES, D.F.C., R.A.F., was married on April 27, at St. John's, Ranmoor, Sheffield, to MARY BEATRICE, only child of the late Mr. and Mrs. P. E. POMROY, and niece of Mr. W. F. Spafford and of the late Mrs. Spafford, of Sheffield.

### To be Married

The engagement is announced between Flight-Lieut. DUNCAN W. GRINNELL-MILNE, M.C., D.F.C., R.A.F., younger son of Mr. and Mrs. G. Grinnell-Milne, of 23, Ennismore Gardens, S.W., and Miss FRANCES WARRINGTON LA LANNE, daughter of the late Mr. and Mrs. F. D. La Lanne, of Philadelphia, Pa., U.S.A.

### Item

Mr. J. J. Smith, of Henley-on-Thames, has been notified of the death of his son, Observation Officer FRANK J. SMITH, R.A.F., killed while flying in Egypt.

## NOTICE TO AIRMEN

### Aerodromes for Civil Use: Amendments

NOTICE to Airmen No. 33 of 1921 (Aerodromes for Civil Use: Consolidated List) is amended as follows:—

LIST B.—*Aerodromes available for Civil Machines in emergency only*

(b) *Stations temporarily retained for Service purposes*  
 The following should be deleted: Castlebar.

### LIST C.—*Licensed Civil Aerodromes*

(b) *Civil Aerodromes licensed as "suitable for Avro 504 K and similar types of aircraft only"*

The following should be added: Bridlington; Herne Bay, Broomfield; Seaview, Isle of Wight.

The following should be deleted: Sale, Brooklands Farm; Stretford (two fields adjoining junction).  
 (No. 43 of 1921.)



## AIRISMS FROM THE FOUR WINDS.

MR. WINSTON CHURCHILL'S ideal for order and happiness in Mesopotamia is said to be: A State with an Arab ruler protected by contingents of British, Indian and native troops and—Imperial Air Forces. At present, however, whatever the goodwill to settle-down, there is a good deal to smooth out. But we shall possibly know more about it all when Mr. Churchill makes his statement in the Commons in the early days of June.

THERE have been one or two unfortunate happenings during the past week through ill-luck, etc., but there is a direct contrast in favour of the air route in the episode reported in which Mr. J. P. Lockhart-Mummery, surgeon, of Hyde Park Place, while at Sudbury last Saturday, received a cablegram from Paris calling him to perform an urgent operation.

By motor-car Mr. Lockhart-Mummery drove from Sudbury to the air-station at Croydon. Here, as arranged by telephone, a fast aeroplane was awaiting him, its propeller already revolving. The machine took the air at 6.20 p.m., *en route* at 100 miles an hour for the Paris air-station at Le Bourget.

A wireless message was received at Croydon on Saturday night stating that the 'plane had landed at Le Bourget at 8.55 p.m., having made its 230 miles' flight in 2 hrs. 35 mins., and that Mr. Lockhart-Mummery, by means of a waiting motor-car, had successfully completed the journey upon which he set out.

THINGS are getting into a practical form for the Peking-Shanghai air-service. A provisional time-table, a *Times* correspondent states, has been issued. This announces that the departures from Peking will be on Mondays, Wednesdays and Fridays at 5.30, from Tientsin at 6.45, Nanking at 12.45, arriving at Shanghai at 18.0. The departures from Shanghai to Peking will be on Tuesdays, Thursdays and Saturdays.

AFROPLANES are taking part officially in this year's Derby. Sounds strange, but it's a fact. The exact rôle of the 'plane

in this historic race, however, will be to assist in marshalling the traffic. In this respect the aeroplane promises to help complete successfully the great effort which is being made to minimise congestion upon the roads, a state of things which last year prevented many hundreds of vehicles and their occupants ever getting near Epsom racecourse. The arrangements for checking the traffic by air are detailed as follows:—

The machine—a D.H.9—will go up on the morning before 10 a.m., when the traffic has started, and a special observer from the Automobile Association will take note of all points at which there is congestion.

Photographs will be taken of these congested points for future guidance, but long before they have been developed, the news that traffic is blocked at this point or that will have been flashed to the police authorities, and every effort will be made by telephonic communication to set things right in order to keep the traffic moving.

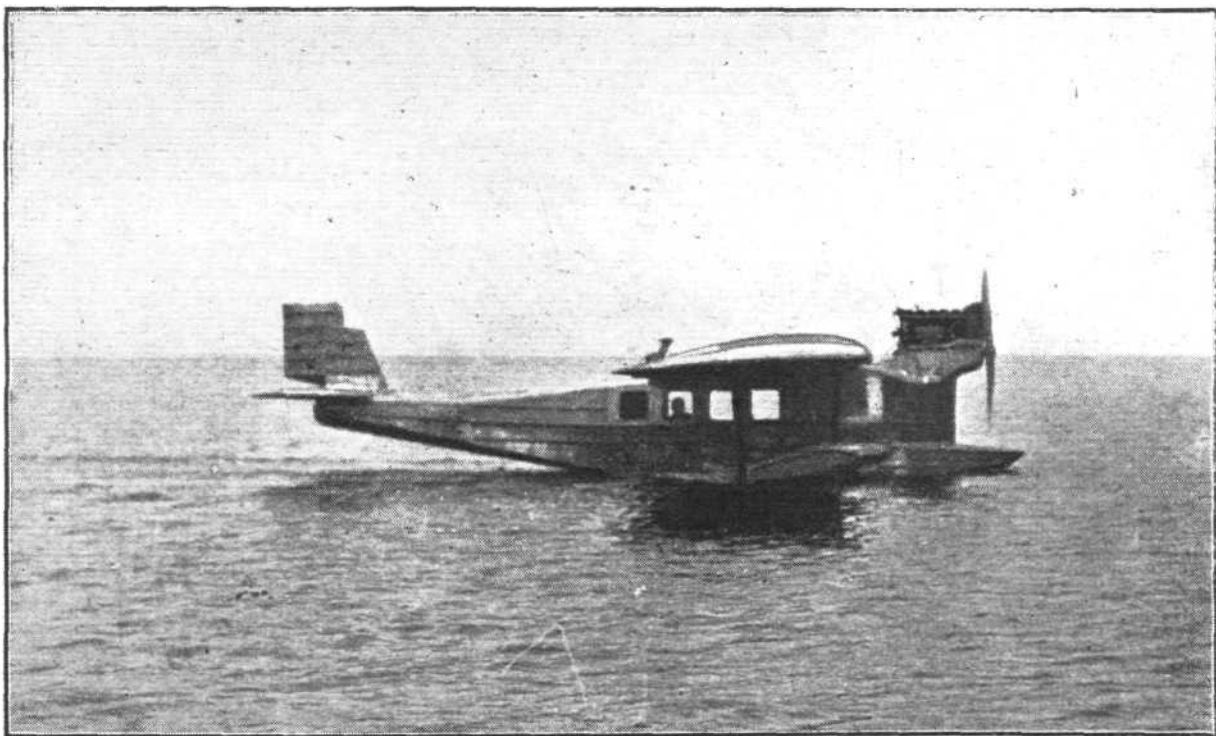
It had been intended to send messages from the air by wireless, but this may not be practicable. In any event the congestion that may be detected will be promptly reported.

Records that have been made in the past show that the crowds reach their greatest density at the following points at the times mentioned:—

10 a.m.—Elephant and Castle; 10.30 a.m. Tooting Broadway; 10.45 a.m.—The Grove, Morden; 11 a.m.—The George, Morden; 11.20 a.m.—Ewell Village; 11.30 a.m. to 12.30—Epsom.

The aeroplane observer will pay particular attention to these spots, and endeavour to communicate at once, with a view to lessening the trouble. At the same time the pilot will be releasing the shutter of his camera in order to register a photograph of the congestion.

Hearty congratulations to Scotland Yard for opening-out against white-whiskered prejudices with such very up-to-date and practical methods.



**AN ALTERED DORNIER CS. II:** In our issue of April 21, 1921, we published an illustrated description of the original Dornier Cs. II. We have now received the accompanying photograph, which shows the machine with altered bow. The hull portion has been extended forward of the nose of the body so as to protect the tractor airscrew against spray, and also to prevent the machine from nosing over. We understand that the alteration has greatly improved the seaworthiness of the machine.

## ADVISORY COMMITTEE REPORTS

THE following is a list of Reports published by the Aeronautical Research Committee during February, March, and April, 1921; they are obtainable from H.M. Stationery Office:—

### Aeronautical Research Committee

#### ENGINE SUB-COMMITTEE REPORTS

52. Secondary Turns on a Magneto Armature and the Secondary Voltage with Shunted Resistance. Relation between the Number of. (With diagrams.) March, 1919. Price 4d.
53. Type Tests and Life Tests on New R.A.F. Standard Accumulators for General Service and Engine. Starting Duties on Aircraft. May, 1920. Price 6d.
55. Callender Electric Air-Flow Meter. (With Diagrams.) September, 1920. Price 4d.
56. Fuel Tables for Aircraft Engines. July, 1920. Price 2d.
57. Detonation in Internal-Combustion Engines. (With Diagrams.) September, 1920. Price 3d.

### Waziristan Air Force Honours

THE King has approved of the following rewards for gallantry and meritorious service:—

*Distinguished Flying Medal*—Kelly, No. 247939 L.A.C. W. J., R.A.F. (Waziristan).

*Meritorious Service Medal*—Clark, No. 5263 Sergt. C., R.A.F. (Mesopotamia); Dowle, No. 107500 L.A.C. (A./Cpl.) W. H., R.A.F. (Waziristan); Greenwood, No. 18473, Sergt. S., R.A.F. (Waziristan); Hammond, No. 6606 Flt. Sergt. F. G., R.A.F. (Waziristan); Kingston, No. 401704 Flt. Sergt. L. F., R.A.F. (Waziristan); Unitt, No. 55149 Flt. Sergt. N., R.A.F. (Waziristan).

### Belgium Honours Wing-Commander Greig

THE King has granted unrestricted permission to Wing-Commander Louis Leisler Greig, M.V.O., M.B., R.A.F., for the wearing of the Croix de Guerre conferred on him by the King of the Belgians for valuable services rendered in connection with the War.

### Captains Cockerell and Broome Receive Medals

IN connection with the Seaplane Trials held in Belgium in August last, which were carried out by Capt. S. Cockerell, A.F.C., and Capt. F. C. Broome, D.F.C., A.F.C., on the Napier-engined Vickers-Viking amphibian machine, it is just announced that commemorative medals have been awarded the two officers by the Aero Club of Belgium and the Organising Committee of the Eighth Olympic Games Meeting, in view of the sportsmanlike performances achieved during the tests.

### An Air Memorial Unveiled

A MEMORIAL to fallen airmen has been enshrined in the little country church of St. Mary, Welton, near the Scampton and North and South Carlton aerodromes, Lincolnshire, and gratefully accepted by Wing-Commander Rees, V.C., of Cranwell Aerodrome, in the name of the whole Royal Air Force. It is a stained-glass window, with the figure of St. Michael piercing the dragon. In the panels are views of Lincoln from the air and pictures of the various types of aeroplanes flown in the War. The memorial was unveiled on May 11 by the Bishop of Lincoln.

### The Mooring Mast at Croydon

WHEN it was first reported in FLIGHT a couple of weeks ago that a mooring mast was to be erected at Croydon there were many who were sceptical. There is now, however, "concrete" proof that we were right, and work has been commenced on the foundations for the mast; in fact, according to our Waddon correspondent, the mast should be ready to "receive" early in June. According to *l'Auto* attempts are being made to come to an agreement whereby the British Air Ministry will provide the airships, while the French Government supplies mooring masts and other ground equipment at Orly (Paris) and Marseilles. If this arrangement should become an accomplished fact, it would go a long way toward the establishment of an international airship service to the East, as the natural corollary would be the establishment of mooring masts at Malta and in Egypt and India.

### The Schneider Cup Race

ACCORDING to the Italian Press, it has been decided that, in order to render the water-tightness test really practical, machines must carry out the speed test without draining off any water that may have got into the floats during the navigability test.

### The Concours Militaire

THE three-engined Goliath, piloted by Gonin, has put up the following performance in the Concours Militaire

### REPORTS AND MEMORANDA

- 360, 584 and 614. Permeability of Airship Fabrics. (With Diagrams.) November, 1917—May, 1919. Price 1s. 3d.
  659. Full-Scale Determination of the Lift and Drag Coefficients of Biplanes, by Means of Engine and Airscrews Performance. (With Diagrams.) December, 1919. Price 1s.
  661. Pressure Distribution over the Tailplane of B.E.2C. Part I. (With Diagrams.) September, 1919. Price 1s.
  676. Component Weights of Aeroplanes. An Analysis of the. (With Diagrams.) April, 1920. Price 9d.
  678. Flying Qualities of Aeroplanes. Influence of Military and Civil Requirements on the. June, 1920. Price 6d.
  679. Pitching Moment and Hinge Moment due to Elevators of various sizes on "B.E.2C." Tailplane. Model Experiments on the. (With Diagrams.) June, 1920. Price 1s.
- [Previous lists appeared in FLIGHT, July 3, 1919; October 23, 1919; February 19, 1920; April 22, 1920; May 13, 1920; August 19, 1920; December 2, 1920; December 30, 1920; February 10, 1921.]

(4,500 kilometres in 500 kilometre stages): First stage, April 1, 3 h. 47 m.; second stage, April 2, 5 h.; third stage, April 3, 3 h. 55 m.; fourth stage, April 12, 3 h. 17 m.; fifth stage, April 12, 3 h. 45 m.; sixth stage, April 13, 3 h. 50 m.; seventh stage, April 21, 3 h. 15 m.; eighth stage, April 22, 3 h. 58 m.; ninth stage, April 23, 3 h. 34 m. Distance 4,500 kilometres (2,800 miles) in 34 h. 21 m. flying time, or an average speed of 81.5 m.p.h. In addition the following data were ascertained: Speed at 6,500 ft. 93 m.p.h.; at 10,000 ft. 67.5 m.p.h. Ceiling 15,000 ft. Useful load 4,850 lbs.

### Failure of Second Grand Prix Attempt

THE second period of the French *Grand Prix de l'Aero Club de France* has been attended by no better luck than was the first one. Bad weather interfered with the first period of three days, and the same cause, plus a few others, has prevented the completion of the course by the two entrants for the second stage. The course is one of approximately 2,400 kilometres (1,500 miles), and is in the form of a letter Y, with the upper arms at Lille and Metz respectively, and with the foot at Pau. Two machines had been entered for the second period—a twin-engined Goliath piloted by the famous Farman pilots Bossoutrot and d'Or, and a single-engined machine piloted by Bernard. The former machine left Le Bourget at six minutes past eight on the evening of May 20, and was reported to have rounded the turning-point at Lille at 10.4 p.m. Bossoutrot and his companions were back at Le Bourget, where they landed, at 11.36 p.m. They reported to have encountered fog at Lille, and stated that they had to come down to 100 metres. The starboard engine showed signs of overheating. It was therefore not possible for them to continue the journey, and they decided to make a second attempt when the engine had been put right. A second start was therefore made on the evening of May 21. Leaving Le Bourget at 7.55 p.m. the Goliath rounded the turning-point at Lille at 10 p.m., and after making the return journey alighted at Le Bourget at 11.40 p.m. After filling up, the machine left again at a quarter past twelve (midnight) and proceeded towards Pau, where a landing was made at 12.40. An intermediate landing had to be made en route some 240 kilometres from Pau owing to fog. After filling up a start was made for Paris, but the machine returned to Pau in order to change a propeller. A second start was made at 3.32 p.m., and all went well as far as Tours, when the second propeller gave trouble and necessitated a landing. This meant abandoning the attempt. As regards Bernard, he left Le Bourget for Lille at 4.25 and rounded the turning-point correctly. However, the fog was so bad that he had to land at Albert, returning later to Le Bourget, but too late to proceed with the attempt.

### Paris-Amsterdam-Paris in Less than Six Hours

A FRENCH twin-engined machine, piloted by Landrin, and having as passengers a party of journalists, is said to have made the journey from Paris to Amsterdam and back in 5 hours 50 minutes, taking 3 hours for the outward journey and 2 hours 50 minutes for the return trip.

### The Andes Flown Again and Filmed

IT would appear to be ultra-fashionable to fly the Andes just now. The latest to achieve the flight is reported to be Major Jack Sison, formerly Royal Air Force, now sub-chief of Peruvian Military Aviation, who left Maranga aerodrome at 12.30 on May 19, flying a Bristol fighter, en route for Cerro de Pasco, accompanied by J. M. McGarrigle, a cinematographer. He passed Morococha at 2 p.m., and landed safely at Cerro de Pasco shelter at 2.35.



# THE ROYAL AIR FORCE

London Gazette, May 10

## Medical Branch

T. P. Harpur is granted temp. commn. as Flying-Officer, with effect from dates indicated while temp. re-empld.; April 19.

## Memoranda

The following are granted temp. commns. in rank stated, with effect from dates indicated while temp. re-empld.:

*Flight-Lieuts.*—D. A. A. Shepperson; April 10. E. R. H. Pollak; April 11. A. J. Michell-Clarke; April 14. N. Macmillan, M.C., A.F.C.; April 15.

*Flying Officers.*—H. V. C. Page; April 9. C. T. Travers; April 10. A. C. McKelvie; April 11. N. S. Dewey, M.C.; April 13. E. A. B. Urnston, D. G. Wilson, M. H. Findlay, D.S.C., D.F.C.; April 14. S. B. Collett; April 15. H. W. Whale; April 17.

Five Cadets are granted hon. commns. as Sec.-Lieuts. with effect from the dates of their demobilisation.

London Gazette, May 13

## Permanent Commissions

Sqdn.-Ldr. G. W. Roberts, M.C., is placed on half-pay, Scale B, from May 9 to Sept. 8, inclusive. Observer Officer G. M. Lawson, M.C., is placed on half-pay, Scale A, from Aug. 1, 1919, to Oct. 19, 1919, inclusive, and on half-pay, Scale B, from Oct. 20, 1919, to Nov. 5, 1919, inclusive.

## Flying Branch

The Christian names of Sec. Lieut. Wilford Owen Marshall are as now described, and not as *Gazette*, April 19.

## Administrative Branch

Sec. Lieut. T. A. P. Proctor relinquishes his temp. commn., on ceasing to be employed, April 20, 1918 (substituted for *Gazette*, June 10, 1919).

## Technical Branch

Sec. Lieut. E. H. Hart to be actg. Lieut. (Cat. A), from July 16, 1918, to Oct. 4, 1918, inclusive. Sec. Lieut. E. H. Hart to be Lieut. (Cat. A), Oct. 5, 1918 (substituted for *Gazette*, Jan. 3, 1919). Sqdn.-Ldr. S. S. Nevill, O.B.E., is transfd. to the unemployed list, March 10, 1920 (substituted for *Gazette*, March 19, 1920).

## Memoranda

Hon. Sec. Lieut. L. F. Gosby relinquishes his hon. commn. on joining the T.F. Lieut. G. A. Haydock is transfd. to the unemployed list; Jan. 1, 1919.

London Gazette, May 17

## Short Service Commissions

The following are granted short service commns. in the ranks stated, with effect from, and with seny. of, the dates indicated:

*Flying Officer (from Pilot Officer).*—W. N. Lancaster; April 30. *Pilot Officer on Probation.*—D. C. Gray; April 28. Flying Officer N. H. Dimmock, A.F.C., resigns his commn., and is granted the rank of Capt.; May 18.

The following Flying Officers resign their commns. and are permitted to retain the rank of Lieut.:—G. R. Howsam, M.C.; May 9. H. B. Richardson, M.C.; May 18.

## Flying Branch

Sec. Lieut. P. H. Dixon, M.M., to be Lieut.; Dec. 10, 1918. Observer Officer C. B. Bird, M.C., relinquishes his temp. commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lieut.; May 6. Lieut. A. J. Patenaude is transferred to the unemployed list; April 30, 1919 (substituted for *Gazette* Sept. 12, 1919, under Administration Branch). Sec. Lieut. C. K. McWilliams is transferred to the unemployed list; Jan. 12, 1919 (previously gazetted as "C. McWilliams"). Lieut. P. H. Dixon, M.M., is transferred to the unemployed list; March 9, 1919 (substituted for *Gazette*, March 28, 1919).

## Administrative Branch

Lieut. (acting Maj.) H. S. Quekett (unemployed list) relinquishes his temp. commn. on appointment to T.F. Reserve.

Sec. Lieut. (Hon. Lieut.) A. K. Boning (unemployed list) relinquishes his temp. commn. on appointment to T.F.

## Technical Branch

Pilot Officer W. L. Rennie to be Flying Officer, without pay and allowances; Sept. 30, 1919. Lieut. W. L. Rennie resigns his temp. commn., and is permitted to retain his rank; Dec. 17, 1919 (substituted for *Gazette*, Dec. 16, 1919). Lieut. (acting Capt.) J. A. P. Martin (unemployed list) relinquishes his temp. commn.; July 28, 1920.



## R.A.F. BOXING

LAST week at Halton Camp, Wendover, the third individual championship boxing meeting was carried through successfully, and brought out some very plucky work by the officers, and throughout the bouts were followed with keenest interest. Details of the results are as follows:—

### Officers

*Light Heavy-Weight.*—Semi-finals: F.O. Drabble (Kenley) beat F.O. Hart (Halton) in the third round; F.O. Clarke (Upavon) beat F.O. Birkbeck (Halton) on points.

Final: Pilot-Officer Drabble beat F.O. Clarke in one round.

*Middle-Weight.*—Semi-finals: F.O. Page (Upavon) beat F.O. Pope (Uxbridge) on points; F.O. Ingram (Beaconhill) beat F.O. Gibbs (Cranwell) on points.

Final: F.O. Page beat F.O. Ingram on points.

*Welter-Weight.*—Semi-finals: F.O. Garraty (Halton) beat F.O. Milne (Cranwell) on points; F.O. Rowe (Netheravon), a bye.

Final: F.O. Garraty beat F.O. Rowe on points.

*Light-Weight.*—Semi-finals: F.O. Smith (Glasgow) beat F.O. Pratt (Cranwell) on points; F.-Lt. P. W. Smith (Halton), a bye.

Final: F.-Lt. Smith beat F.O. Smith in first round, referee stopping bout.

*Heavy-Weight.*—Final: F.-Lt. Brady (Halton) k.o. F.-Lt. Usher (Netheravon) in first round.

*Feather-Weight.*—Final: F.O. Howard (Flowerdown) beat F.O. Horsley (Kenley) on points.

### Other Ranks

*Fly-Weight.*—Semi-finals: A.-C. McKenzie (Henlow) beat A.-C. Lauder (Halton) on points; A.-C. Millington (Halton) beat A.-C. Lawler (Netheravon) on points.

Final: Millington and McKenzie declared no contest in second round, after having been previously warned for not doing their best.

*Bantam-Weight.*—Semi-finals: A.-C. Wells (Uxbridge) beat A.-C. Dent (Halton) on points; Sergt. Sallows (Flowerdown) beat A.-C. Griffin (Halton) in the first round.

Final: Sallows beat Wells, who retired in the second round.

*Feather-Weight.*—Semi-finals: A.-C. Cottingham (Henlow) knocked out L. A.-C. Wood (Howden) in the first round; A.-C. Carter (Halton) beat L.-A.-C. Ballantyne (Howden) in the second round, when the referee stopped the bout.

Final: Carter beat Cottingham in the second round.

*Light-Weight.*—Semi-finals: Sergt. Stone (Winchester) beat A.-C. Wilson (Halton) in the first round; A.-C. Muller

(Uxbridge) knocked out Corpl. Salter (Halton) in the first round.

Final: Stone beat Mullen, who retired in the second round.

*Welter-Weight.*—Semi-finals: A.-C. Mills (Uxbridge) knocked out A.-C. Hunter (Donibristle) in the first round; A.-C. Brady (Flowerdown) beat A.-C. Kenward (Howden) on points.

Final: Mills beat Brady on points.

*Middle-Weight.*—Semi-finals: L.-A.-C. Jackson (Uxbridge) beat A.-C. James (Manston) on points, after an extra round; A.-C. Higgins (Cranwell) beat A.-C. Fisher (Old Sarum), who was disqualified for hitting low in the first round.

Final: Higgins beat Jackson on points.

*Light Heavy-Weight.*—Semi-finals: Corpl. Blythe (Winchester) beat A.-C. Bishop (210 Squad) on points; L.-A.-C. Fairbairn (Cranwell) beat Corpl. Carter (Halton) on points.

Final: Fairbairn beat Blythe, the holder, on points.

*Heavy-Weight.*—Final: Corpl. Leary (Felixstowe) knocked out A.-C. (2) Cracknell (Winchester) in the first round.

### Boys

*Midgets.*—Final: Booth (Cranwell) beat Cork (Cranwell) on points.

*Paper-Weight.*—Final: Brooks (Cranwell) beat Harrington (Cranwell) on points.

*Fly-Weight.*—Final: White (Cranwell) beat Kelly (Cranwell) on points.

*Bantam-Weight.*—Semi-finals: Barrett (Cranwell) beat Dunning (Cranwell) on points; Faulkner (Cranwell) beat Johns (Cranwell) on points.

Final: Faulkner beat Barrett on points.

*Feather-Weight.*—Final: Aitken (Cranwell) beat Blaze (Cranwell) on points.

*Light-Weight.*—Semi-finals: Stockwell (Cranwell) beat Pallant (Cranwell) on points; Nichols (Cranwell) beat Last (Cranwell) on points.

Final: Nichols beat Stockwell on points.

*Middle-Weight.*—Semi-finals: Wilson (Cranwell) beat Glasson (Cranwell) on points; Roberts (Henlow) beat Hudson (Cranwell) on points.

Final: Wilson beat Roberts on points.

*Welter-Weight.*—Final: Garner beat Appleyard on points, after an extra round.

*Light Heavy-Weight.*—Final: Ockenden (Cranwell) beat Hanna (Cranwell) on points.

*Heavy-Weight.*—Final: Steele (Cranwell) beat Deakin (Cranwell) on points.

## SIDE-WINDS

OWING to the closing down of Messrs. Wm. Beardmore's aeroplane department, Mr. G. Tilghman Richards, who has been with the firm since 1915 as chief designer and engineer, is free to take up a similar position with another aviation firm. Mr. Richards, who has had an excellent training as a motor-car and general engineer, took up experimental aviation in 1911 and has been continuously engaged on aircraft engineering ever since. His name is, of course, well known in the aircraft world, and if any firm would care to get into touch with him, letters addressed to him at the Royal Aero Club, 3, Clifford Street, London, W. 1, will find him. It is to be hoped that a man of Mr. Richards' experience will not be lost to the aviation industry.

MR. DOUGLAS W. THORBURN who has for some years been connected with Messrs. C. C. Wakefield and Co., Ltd., has resigned his position this month and is going to live on the French Riviera. Lucky man, to be able to get away from all the strife and trouble to which England of late seems fated. Mr. Thorburn's personality will be greatly missed in Club and other places aviatric where good sportsmen do congregate. Any aviation gathering, social or otherwise, was hardly regarded as complete without the presence of D. W. T. Although, for the time, going to more tranquil shores, our readers who have from time to time been regaled with Mr. Thorburn's witticisms and critical writings will not necessarily be deprived of this pleasure. D. W. T. has no idea of living an idle life—his keen powers of observation and ability to give expression to what he sees, therefore, still finding, we hope, an outlet from time to time in the pages of FLIGHT.

### A New Propeller

ALWAYS well to the fore in testing anything new, the Handley Page firm are about to make practical tests on a new propeller designed by Mr. A. M. Bourke. The feature of the new propeller is that it has flanges or fins attached to both front and back of the blades, these fins running from leading to trailing edge. The object would appear to be the prevention of end losses at the blade tips and a consequent gain in efficiency. The idea is not new, but possibly some details of it may be.

### Mr. Handasyde and the Martinsyde Firm

IN view of the statements which have appeared in the press, and which might give the impression that Mr. Handasyde was still connected with the Martinsyde firm, we have been asked to make a statement of the facts of the case. Mr. Handasyde and Mr. Hamilton Fulton, both of whom were directors of Martinsyde, Ltd., resigned about six months ago, and are no longer connected with the Martinsyde firm. They formed a new company known as Handasyde Aircraft Company, Ltd., with offices at Carlton House, 11D, Regent Street. The new firm have under construction, in co-operation with another firm, a machine which will probably be entered for the Aerial Derby. This machine is a cantilever monoplane (we thought Handasyde would return to his old love sooner or later), and if we know anything of Handasyde design some startling performances may be expected. However, we are not at liberty to give any details at present. The splendid little "Semi-Quaver" which won the Derby last year was an extraordinarily fine machine, but the new one will probably put it entirely in the shade. Look out for the H.A.C. Mono.

### "P.B." Retires with a Kick

MR. PEMBERTON BILLING has sent the following letter to the Speaker of the House of Commons:—

"Dear Mr. Speaker,—Since the last General Election, when Mr. Lloyd George was returned to power with an overwhelming majority by a deluded electorate, he has ingeniously and consistently employed that majority to vary the ancient procedure of your Honourable House for the purpose of sterilising the independent critics of his bureaucratic and dishonest administration.

"As I do not consider that it is compatible either with the dignity or honour of a public man of independent views to remain in an Assembly so unwholesome and unfair as the present Prime Minister has rendered the once free and independent House of Commons at the instigation of a camarilla of International financiers with whom he has so closely identified His Majesty's Government, I should be honoured if you would inform me what steps it is necessary for me to take to be released forthwith from the necessity of continuing to attend as Parliamentary representative of East Hertfordshire.—I remain,

"Yours faithfully,  
"PEMBERTON BILLING"

### Some Accidents—Home and Abroad

FROM Fort Grange Aerodrome, near Portsmouth, on May 20, a sad accident is reported in which Flying Officer J. H. T. Carr and Aircraftsman A. Armstrong were killed.

They went for a flight during the afternoon, Flying Officer Carr acting as pilot. When about 300 ft. up the aeroplane was seen to be out of control, and the machine crashed heavily into the west bank of Fort Rowner. The airmen had been attached to Fort Grange for about ten days from H.M.S. *Argus*, Flying Officer Carr being an experienced pilot.

Another mishap occurred on May 22 at Port Melbourne, Australia, where Maj. Hubert G. Ross, late R.A.F., and a partner in the Shaw-Ross Aviation Co., crashed, one other occupant of the machine besides the pilot being killed and one passenger injured.

An unfortunate accident is also recorded from San Sebastian, Spain. Mr. Alexander H. Forson, a British pilot, who was flying from the Casarte Aerodrome to Madrid to deliver a machine, became involved in a dense fog. Completely losing his bearings, he finally crashed in the Pyrenees at Anzuola, near Vergura, North Spain.

### PUBLICATIONS RECEIVED

*Henslowe's Motor Dictionary, English-French, French-English.* Compiled by Leonard Henslowe. London: Constable and Co., Ltd. Price 4s. 6d.

*Aeroplane Performance Calculations.* By Harris Booth, B.A., Assoc.M.Inst.C.E., F.R.Ae.S. The D.U. Technical Series. London: Chapman and Hall, Ltd. Price 21s. net.

*Technical Note No. 48, Airplane Superchargers.* By W. G. Noack. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

### AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; — I.C. internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

#### APPLIED FOR IN 1918

Published May 26, 1921

16,812. W. H. TRIPP. Tilting and turning indicator. (162,304.)

#### APPLIED FOR IN 1920

Published May 26, 1921

14,512. A. S. AEGERTER. Clinometer. (145,402.)

18,732. GÖTHAER WAGGONFABRIK AKT.-GES. Power units for aeroplanes. (146,853.)

19,245. WERKSTATTEN FÜR PRÄZISIONS-MECHANIK C. BAMBERG. Fluid compasses for use at high altitudes. (147,179.)

33,943. SPERRY GYROSCOPE CO. Gyroscopes. (162,604.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xiii and xiv).

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